

### **REMARKS**

Claims 1-4, 7-12, 14-15, 24-25, 27-38, 41-42, 47-52, 70-86, 88-90, 92-97, 100-113, 117-120, 122-124, 131-146, 149-150, 155-160 and 178-189 are now pending in the application. Claims 5-6, 13, 16-23, 26, 39-40, 43-46, 53-69, 87, 91, 98-99, 114-116, 121, 125-130, 147-148, 151-154, 161-177 and 190-199 have been cancelled. Claims 1, 7, 14-15, 25, 48, 79, 82, 88-90, 93, 111, 122-124, 132, 178, and 187 have been amended. Support for the amendments to the claims is found throughout the specification and claims as originally filed and at Paragraphs 26-28 and 50, for example. No new matter has been added. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 1-9, 12-16, 18-22, 24, 25, 27-30, 70, 73-84, 87-90, 92-98, 102-118, 121-129, 131-138, 178, 179 and 181-194 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Chen et al. (U.S. Pat. No. 6,471,936) (hereinafter "Chen"). This rejection is respectfully traversed.

As noted above, Claims 5-6, 13, 16, 18-22, 87, 98, 114-116, 121, 125-129, and 190-194 have been cancelled. Independent Claims 1, 82, 111, 178 and 187 have been amended to commonly recite a dehydrated hydroxide compound. Amended Claims 1, 14-15, 82, 88-90, 111, and 122-124 clarify the recited cationic species of the hydroxide (e.g., MII). Also, Claims 25, 93, 132, 178, and 187 have been amended to clarify the claimed hydroxide compounds.

Remaining rejected Claims 1-4, 7-9, 12, 14-15, 24, 27-30, 70, 73-84, 88-90, 92-97, 102-113, 122-124, 131-138, 178-179 and 181-189 are patentable over Chen, because the Chen reference fails to teach or enable the claimed methods of producing hydrogen or claimed hydrogen storage compositions having hydride and hydroxide compositions.

As set forth in the Appeal Brief and Reply Brief, incorporated by reference above, the Chen reference fails to describe, either explicitly or inherently, that hydrogen is produced in a reaction between a hydride and a hydroxide composition, such as found in independent Claims 1, 82, and 178. Similarly, Claim 111 is directed to a hydrogen storage composition having a hydrogenated state with a dehydrated hydroxide and a hydride and a dehydrogenated state with an oxide. Claim 187 provides a mixture of a dehydrated hydroxide and a hydride to promote release of hydrogen in the presence of a catalyst, elevated temperature, or both.

The Chen reference pertains to two entirely independent steps. The first is directed to preparing a carbon-based sorbent material by doping with alkali metal(s). The Chen reference describes adding alkali metal salts to carbon materials in a calcination reaction to change the structural and electronic properties of the carbon material. Col. 2, lines 47-54. The second aspect is directed to using the pre-formed alkali-metal doped carbon-based sorbent for reversible storage of hydrogen gas. Thus, after forming the doped carbon-based sorbent in the first step, Chen subsequently reversibly stores and releases hydrogen from the pre-formed sorbent. The Chen reference does not teach or enable a hydrogen generation reaction in either step, but

rather provides a preparation step and a hydrogen adsorption/desorption step. For all of the reasons set forth in the Appeal Brief and Reply Brief, Chen neither anticipates nor renders the invention of Claims 1-4, 7-9, 12, 14-15, 24, 27-30, 70, 73-84, 88-90, 92-97, 102-113, 122-124, 131-138, 178-179 and 181-189 obvious, thus reconsideration and allowance is requested.

The amended claims further specify that a dehydrated hydroxide composition reacts with a hydride composition to form hydrogen, such that there is no water of hydration associated with the hydroxide composition. The prior art does not teach or suggest hydrogen storage systems that have hydroxides substantially free of water to provide a hydrogen generation reaction that is highly controllable and has a relatively low change in enthalpy. As such, Applicants respectfully request reconsideration and allowance of the claims.

#### **ALLOWABLE SUBJECT MATTER**

The Examiner states that Claims 10, 11, 31-38, 41-42, 47-52, 71, 72, 85, 86, 91, 100-101, 119, 120, 139-146, 149-150, 155-160 and 180 would be allowable if rewritten in independent form. As indicated above, Applicants have cancelled Claims 17, 23, 26, 39, 40, 43-46, 53-69, 99, 130, 147-148, 151-154 and 161-177. Thus, only Claims 10, 11, 31-38, 41-42, 47-52, 71, 72, 85, 86, 91, 100-101, 119-120, 139-146, 149-150, 155-160 and 180 remain pending, which the Examiner previously indicated contained allowable subject matter.

CONCLUSION


It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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